

REMARKS

The Office action suggests the Hwu teaches using a liquid oxidizer. While he does use a liquid, it is clear and explicitly stated in Hwu that that liquid is an electrolyte. See column 3, line 33.

An electrolyte is not a liquid oxidizer. Instead the oxidation is the result of liquid phase anodic oxidation. See column 3, line 30. An "electrolyte" is a chemical compound which when molten or dissolved in certain solvents, usually water, will conduct an electrical current. See McGraw-Hill Dictionary of Scientific and Technical Terms attached. Plainly an electrolyte and a liquid oxidizer are two very different things.

A search of the patent database indicates that the only patent that uses the phrase "liquid phase anodic oxidation" is the one currently cited. An "anodic reaction" however is a reaction in the mechanism of electrochemical corrosion in which the metal forming the anode dissolves in the electrolyte in the form of positively charged ions. See McGraw-Hill Dictionary attached. The same dictionary defines "electrolysis" as a method by which chemical reactions are carried out by passage of electric current through a solution of electrolyte or a molten salt. See copy attached.

What causes the oxidation in the cited reference is electrical current passing through the electrolyte which itself is not an oxidizer. The same dictionary defines an "oxidizing agent" as "a compound that gives up oxygen easily, removes hydrogen from another compound or tracks negative electrons". See copy attached.

An electrolyte does not do any of these things. While electricity might do such things, electricity is not a liquid oxidizer. In short, there is no justifiable way to assert that use of an electrolytic reaction teaches the use of a liquid oxidizer.

Therefore, reconsideration is requested.

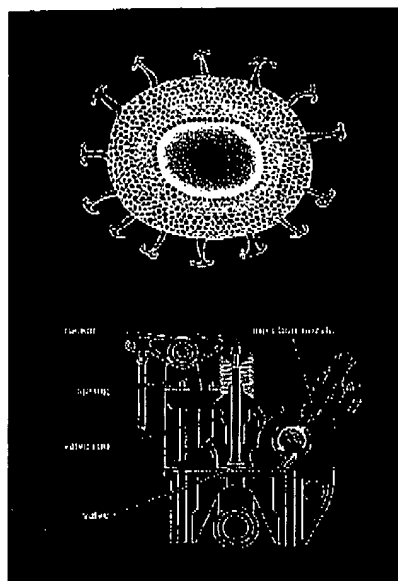
Respectfully submitted,

Date: February 21, 2006



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McGraw-Hill Dictionary of Scientific and Technical Terms

DANIEL N. LAPEDES Editor in Chief

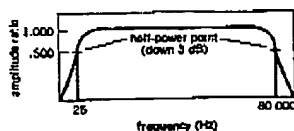
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electroencephalogram electrolytic Interrupter

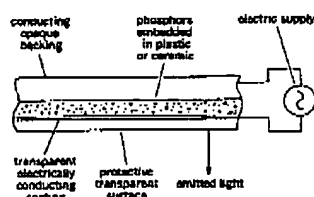
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ELECTROKINETIC TRANSDUCER



Typical response curve of unit-cell transducer.

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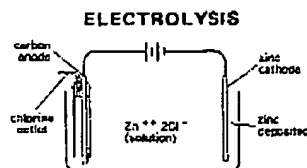
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electrolytic Interrupter [ELEC] An interrupter that consists of



Electrolysis of zinc chloride solution.

anode effect

Anomura

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anode of an electron tube because of bombardment by electrons and ions.

anode effect [PHYS CHEM] A condition produced by polarization of the anode in the electrolysis of fused salts and characterized by a sudden increase in voltage and a corresponding decrease in amperage.

anode efficiency [ELECTR] The ratio of the ac load circuit power to the dc anode power input for an electron tube. Also known as plate efficiency.

anode fall [ELECTR] A very thin space-charge region in front of an anode surface, characterized by a steep potential gradient through the region.

anode film [CHEM] The portion of solution in immediate contact with the anode.

anode furnace [MET] A furnace in which blister copper or impure nickel is refined.

anode impedance [ELECTR] Total impedance between anode and cathode exclusive of the electron stream. Also known as plate impedance; plate-load impedance.

anode input power [ELECTR] Direct-current power delivered to the plate (anode) of a vacuum tube by the source of supply. Also known as plate input power.

anode metal [MET] The metal used as anode in an electroplating process.

anode modulation [ELECTR] Modulation produced by introducing the modulating signal into the anode circuit of any tube in which the carrier is present. Also known as plate modulation.

anode mud [MET] An insoluble substance or mixture that collects at the anode in an electrolytic refining or plating process. Also known as anode slime.

anode neutralization [ELECTR] Method of neutralizing an amplifier in which the necessary 180° phase shift is obtained by an inverting network in the plate circuit. Also known as plate neutralization.

anode pulse modulation [ELECTR] Modulation produced in an amplifier or oscillator by application of externally generated pulses to the plate circuit. Also known as plate-pulse modulation.

anode rays [ELECTR] Positive ions coming from the anode of an electron tube; generally due to impurities in the metal of the anode.

anode resistance [ELECTR] The resistance value obtained when a small change in the anode voltage of an electron tube is divided by the resulting small change in anode current. Also known as plate resistance.

anode saturation [ELECTR] The condition in which the anode current of an electron tube cannot be further increased by increasing the anode voltage; the electrons are then being drawn to the anode at the same rate as they are emitted from the cathode. Also known as current saturation; plate saturation; saturation; voltage saturation.

anode scrap [MET] Portions of anode copper retrieved from electrolytic refining of the metal.

anode sheath [ELECTR] The electron boundary which exists in a gas-discharge tube between the plasma and the anode when the current demanded by the anode circuit exceeds the random electron current at the anode surface.

anode slime See anode mud.

anodic [PHYS] Pertaining to the anode.

anodic cleaning [MET] The removal of a foreign substance from a metallic surface by electrolysis with the metal as the anode. Also known as anodic pickling; reverse-current cleaning.

anodic coating [MET] A film of oxide produced on a metal by electrolysis with the metal as the anode.

anodic pickling See anodic cleaning.

anodic polarization [PHYS CHEM] The change in potential of an anode caused by current flow.

anodic reaction [MET] The reaction in the mechanism of electrochemical corrosion in which the metal forming the anode dissolves in the electrolyte in the form of positively charged ions.

anodize [MET] The formation of a decorative or protective passive film on a metal part by making it the anode of a cell and applying electric current.

anodized aluminum [MET] Aluminum coated with a layer of

aluminum oxide by an anodic process in a suitable electrolyte such as chromic acid or sulfuric acid solution.

anodized magnesium [MET] An anodic coating on magnesium produced in one of various electrolytes, mainly of fluorides, phosphates, or chromates.

anole [VERT ZOO] Any arboreal lizard of the genus *Anolis*, characterized by flattened adhesive digits and a prehensile outer toe.

anolyte [CHEM] The part of the electrolyte at or near the anode that is changed in composition by the reactions at the anode.

Anomalinae [INV ZOO] A superfamily of marine and benthic saccodinium protozoans in the order Foraminifera.

anomalous month [ASTRON] The average period of revolution of the moon from perigee to perigee, a period of 27 days 13 hours 18 minutes 33.2 seconds.

anomalous period [ASTRON] The interval between two successive perigee passages of a satellite in orbit about a primary. Also known as perigee-to-perigee period.

anomalous year [ASTRON] The period of one revolution of the earth about the sun from perihelion to perihelion; 365 days 6 hours 13 minutes 53.0 seconds in 1900 and increasing at the rate of 0.25 second per century.

anomaloscope [OPTICS] An optical instrument for testing color vision, in which a yellow light whose intensity may be varied is matched against red and green lights whose intensity is fixed.

anomalous [SCI TECH] Deviating from the normal; irregular.

anomalous dispersion [OPTICS] Extraordinary behavior in the curve of refractive index versus wavelength which occurs in the vicinity of absorption lines or bands in the absorption spectrum of a medium.

anomalous magma [GEO] Magma formed or obviously changed by assimilation.

anomalous magnetic moment [PARTIC PHYS] The difference between the observed magnetic moment and the value predicted by Dirac's theory.

anomalous water See polywater.

anomalous Zeeman effect [SPECT] A type of splitting of spectral lines of a light source in a magnetic field which occurs for any line arising from a combination of terms of multiplicity greater than one; due to a nonclassical magnetic behavior of the electron spin.

Anomaluridae [VERT ZOO] The African flying squirrels, a small family in the order Rodentia characterized by the climbing organ, a series of scales at the root of the tail.

anomaly [ASTRON] In celestial mechanics, the angle between the radius vector to an orbiting body from its primary (the focus of the orbital ellipse) and the line of apsides of the orbit, measured in the direction of travel, from the point of closest approach to the primary (perifocus). Also known as true anomaly.

anomaly [GEO] An abnormal deviation from the characteristic form of a group.

anomaly [GEO] A local deviation from the general geological properties of a region.

anomaly [MED] Any part of the body that is abnormal in position, form, or structure.

[METEOROL] The deviation of the value of an element (especially temperature) from its mean value over some specified interval.

[OCEANOGR] The difference between conditions actually observed at a serial station and those that would have existed had the water all been of a given arbitrary temperature and salinity.

anomaly of geopotential difference See dynamic-height anomaly.

anomer [ORG CHEM] One of a pair of isomers of cyclic carbohydrates; resulting from creation of a new point of symmetry when a rearrangement of the atoms occurs at the aldehyde or ketone position.

anomite [MINERAL] A variety of biotite different only in optical orientation.

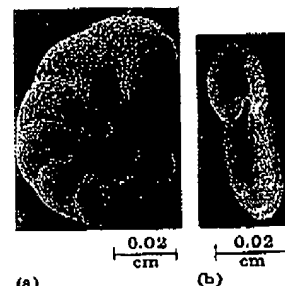
Anomocoele [VERT ZOO] A suborder of toadlike amphibians in the order Anura characterized by a lack of free ribs.

anomocoeleous [ANAT] Describing a vertebra with a centrum that is concave anteriorly and flat or convex posteriorly.

Anomphalacae [PALEON] A superfamily of extinct gastropod mollusks in the order Aspidobranchia.

Anomura [VERT ZOO] A section of the crustacean order Decapoda that includes lobsterlike and crablike forms.

ANOMALINACEA

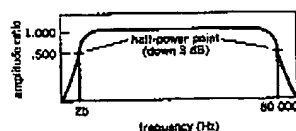


Scanning electron micrograph of the foraminifera *Holmanella*, from the Miocene of California. (a) Spiral view and (b) edge view of a bivoluate planispiral test, with a coarsely perforate granular margin and a slitlike aperture extending up the terminal face. (R. B. MacAdam, Chevron Oil Field Research Co.)

electroencephalogram electrolytic interrupter

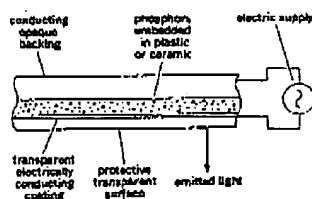
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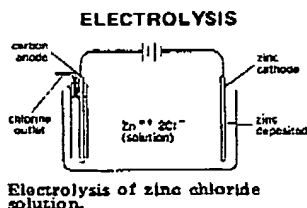
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ovonic device oxime

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and printout can be achieved by electrostatic printing techniques.

ovonic device See glass switch.

ovonic memory switch [ELECTR] A glass switch which, after being brought from the highly resistive state to the conducting state, remains in the conducting state until a current pulse returns it to its highly resistive state. Abbreviated OMS.

ovonic threshold switch [ELECTR] A glass switch which, after being brought from the highly resistive state to the conducting state, returns to the highly resistive state when the current falls below a holding current value. Abbreviated OTS.

ovotesticular hermaphroditism [MED] A rare form of hermaphroditism in which an ovotestis is present on one or both sides.

ovoviviparous [VERT ZOO] Producing eggs that develop internally and hatch before or soon after extrusion.

Ovshinsky effect [ELECTR] The characteristic of a special thin-film solid-state switch that responds identically to both positive and negative polarities so that current can be made to flow in both directions equally.

ovulation [PHYSIO] Discharge of an ovum or ovule from the ovary.

ovule [BOT] A structure in the ovary of a seed plant that develops into a seed following fertilization.

ovum [CYTO] A female gamete. Also known as egg.

O-wave component See ordinary-wave component.

Owen bridge [ELECTR] A four-arm alternating-current bridge used to measure self-inductance in terms of capacitance and resistance; bridge balance is independent of frequency.

Oweniidae [INV ZOO] A family of limivorous polychaete annelids of the Sedentaria.

owl [VERT ZOO] Any of a number of diurnal and nocturnal birds of prey composing the order Strigiformes; characterized by a large head, more or less forward-directed large eyes, a short hooked bill, and strong talons.

OW unit See sabin.

oxalate [ORG CHEM] Salt of oxalic acid; contains the $(\text{COO})_2$ radical; examples are sodium oxalate, $\text{Na}_2\text{C}_2\text{O}_4$, ammonium oxalate, $(\text{NH}_4)_2\text{C}_2\text{O}_4 \cdot \text{H}_2\text{O}$, and ethyl oxalate, $\text{C}_2\text{H}_5(\text{C}_2\text{O}_4)\text{C}_2\text{H}_5$.

oxaldehydic acid See glyoxalic acid.

oxalic acid [ORG CHEM] $\text{HOOC}\text{COOH} \cdot 2\text{H}_2\text{O}$ Poisonous, transparent, colorless crystals melting at 187°C ; soluble in water, alcohol, and ether; used as a chemical intermediate and a bleach, and in polishes and rust removers.

Oxalidaceae [BOT] A family of dicotyledonous plants in the order Geraniales, generally characterized by regular flowers, two or three times as many stamens as sepals or petals, a style which is not gynobasic, and the fruit which is a beakless, loculicidal capsule.

oxalite See humboldtine.

oxalosis [MED] A rare hereditary metabolic disorder, inherited as an autosomal recessive, in which glyoxylic acid metabolism is impaired, resulting in overproduction of oxalic acid and deposition of calcium oxalate in body tissues.

oxaluria [MED] The presence of oxalic acid or oxalates in the urine.

oxalyl chloride [INORG CHEM] $(\text{COCl})_2$ Toxic, colorless liquid boiling at 64°C ; soluble in ether, benzene, and chloroform; used as a chlorinating agent and for military poison gas. Also known as ethanedioyl chloride.

oxalylurea See parabanic acid.

oxamide [ORG CHEM] $\text{NH}_2\text{COCONH}_2$ Water-insoluble white powder, melting at 419°C ; used as a stabilizer for nitrocellulose products.

Oxamycin [MICROBIO] A trade name for the antibiotic cycloserine.

oxaryl See carboxyl.

oxazole [ORG CHEM] $\text{C}_3\text{H}_3\text{ON}$ A structure that consists of a five-membered ring containing oxygen and nitrogen in the 1 and 3 position; a colorless liquid (boiling point $69\text{--}70^\circ\text{C}$) that is miscible with organic solvents and water; used to prepare other organic compounds.

oxbow [HYD] 1. A closely looping, U-shaped stream meander whose curvature is so extreme that only a neck of land

remains between the two parts of the stream. Also known as horseshoe bend. 2. See oxbow lake. [GEOL] The abandoned, horseshoe-shaped channel of a former stream meander after the stream formed a neck cutoff. Also known as abandoned channel.

oxbow lake [HYD] The crescent-shaped body of water located alongside a stream in an abandoned oxbow after a neck cutoff is formed and the ends of the original bends are silted up. Also known as crescentic lake; cutoff lake; horseshoe lake; loop lake; moat; mortlake; oxbow.

Oxfordian [GEOL] A European stage of geologic time, in the Upper Jurassic (above Callovian, below Kimmeridgian). Also known as Divesian.

Oxford unit [MICROBIO] The minimum quantity of penicillin which, when dissolved in 50 milliliters of a meat broth, is sufficient to inhibit completely the growth of a test strain of *Micrococcus aureus*; equivalent to the specific activity of 0.6 microgram of the master standard penicillin.

oxidase [BIOCHEM] An enzyme that catalyzes oxidation reactions by the utilization of molecular oxygen as an electron acceptor.

oxidite [GEOL] A sediment made up of iron and manganese oxides and hydroxides crystallized from aqueous solution.

oxidation [CHEM] 1. A chemical reaction that increases the oxygen content of a compound. 2. A chemical reaction in which a compound or radical loses electrons, that is in which the positive valence is increased.

oxidation number [CHEM] 1. Numerical charge on the ions of an element. 2. See oxidation state.

oxidation potential [PHYS CHEM] The difference in potential between an atom or ion and the state in which an electron has been removed to an infinite distance from this atom or ion.

oxidation-reduction indicator [ANALY CHEM] A compound whose color in the oxidized state differs from that in the reduced state.

oxidation-reduction potential See redox potential.

oxidation-reduction reaction [CHEM] An oxidizing chemical change, where an element's positive valence is increased (electron loss), accompanied by a simultaneous reduction of an associated element (electron gain).

oxidation state [CHEM] The number of electrons to be added (or subtracted) from an atom in a combined state to convert it to elemental form. Also known as oxidation number.

oxide [CHEM] Binary chemical compound in which oxygen is combined with a metal (such as Na_2O ; basic) or nonmetal (such as NO_2 ; acidic).

oxide-coated cathode [ELECTR] A cathode that has been coated with oxides of alkaline-earth metals to improve electron emission at moderate temperatures.

oxide fuel reactor [NUCLEO] A nuclear fission reactor with fuel in the form UO_2 or PuO_2 .

oxide mineral [MINERAL] A naturally occurring material in oxide form such as silicon dioxide, SiO_2 , magnetite, Fe_3O_4 , or lime, CaO .

oxide nuclear fuel [NUCLEO] The fissionable nuclear fuels UO_2 and PuO_2 .

oxidized cellulose See oxycellulose.

oxidized microcrystalline wax [MATER] Refined, oxidized wax from bottoms of storage tanks for solvent-extracted petroleum; used in floor polishes.

oxidized shale See burnt shale.

oxidized zone [GEOL] A region of mineral deposits which has been altered by oxidizing surface waters.

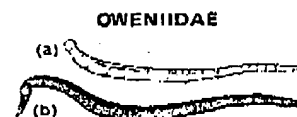
oxidizing agent [CHEM] Compound that gives up oxygen easily, removes hydrogen from another compound, or attracts negative electrons.

oxidizing atmosphere [CHEM] Gaseous atmosphere in which an oxidation reaction occurs; usually refers to the oxidation of solids.

oxidizing flame [CHEM] A flame, or the portion of it, that contains an excess of oxygen.

oxidoreductase [BIOCHEM] An enzyme catalyzing a reaction in which two molecules of a compound interact so that one molecule is oxidized and the other reduced, with a molecule of water entering the reaction.

oxime [ORG CHEM] Compound containing the $\text{CH}(\text{:NOH})$

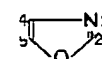


Myriocheila. (a) Entire ovigerous individual. (b) The tapering tube in which the mud-swallowing worm is securely contained.



Great horned owl (*Bubo virginianus*), a nocturnal bird of prey.

OXAZOLE



Structure and numbering system for a representative oxazole, 1,3-oxazole.

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